Stage of Cancer at Diagnosis for Medicare HMO and Fee-for-Service Enrollees

ABSTRACT

Objectives. Health maintenance organizations (HMOs) with Medicare contracts often provide cancer screening and preventive services not covered under fee-for-service. This study compared cancer patients in HMOs and fee-for-service on stage at diagnosis.

Methods. The study examined stage at diagnosis for aged Medicare enrollees in HMOs and fee-for-service, using information from the Surveillance, Epidemiology, and End Results program, linked with Medicare enrollment files. Twelve cancer sites were investigated, and demographics, area of residence, year of diagnosis (1985 to 1989), and education at the census tract level were controlled.

Results. HMO enrollees were diagnosed at earlier stages for cancers of the female breast, cervix, colon, and melanomas and at later stages for stomach cancer. There were no differences for cancers of the prostate, rectum, buccal cavity and pharynx, bladder, uterus, kidney, and ovary. HMO effects were strongest in areas with large, mature HMOs.

Conclusions. Compared with fee-for-service enrollees, HMO enrollees were diagnosed at earlier stages for cancer sites for which effective screening services are available. The earlier detection of certain cancers among HMO enrollees may result from coverage of screening services and, perhaps, promotion by HMOs of such services. (*Am J Public Health.* 1994;84:1598–1604)

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Introduction

Because of their cost-containment potential, health maintenance organizations (HMOs) and other managed care delivery systems are cornerstones of many health reform proposals. Consequently, there is considerable interest in how access to and quality of care in HMOs compares with that in fee-for-service. Access and quality are prominent issues in the Clinton Administration's Health Security Act, which calls for evaluation of care provided by individual health plans and for feedback to consumers. Most studies to date have found few differences between HMOs and fee-for-service on access or quality.[1]

Some studies have examined stage of cancer at diagnosis to compare care in HMO and fee-for-service settings because it is strongly associated with survival. These studies have generally found no difference between HMO and fee-for-service in stage at cancer diagnosis.[1–5] With the exception of Brown et al.,[1] these studies have been limited to single HMOs, and most have been limited to one cancer site.

Our study examined differences in stage of cancer at diagnosis between aged Medicare beneficiaries enrolled in HMOs and those treated in fee-for-service. Staff model, group model, and Independent Practice Association HMOs were included. We used Medicare data linked to tumor registry data from the National Cancer Institute's (NCI) Surveillance, Epidemiology, and End Results (SEER) program. Twelve cancer sites were studied: prostate; female breast; colon; bladder; rectum and rectosigmoid junction; corpus uteri and uterus, not otherwise specified; buccal cavity and pharynx; kidney and renal pelvis; melanoma of the skin; stomach; ovary; and cervix uteri. This study extends the work of earlier investigations by including cases from many HMOs, expanding the number of cancer sites studied, and including larger numbers of cases.

We selected these 12 cancer sites because of their varying degrees of potential for screening. Many HMOs with Medicare contracts cover services outside the regular Medicare benefit package, including preventive services, to induce beneficiaries to enroll. Preventive services, which often include cancer screenings and physical examinations, may lead to earlier stages at diagnosis for HMO enrollees.

Methods

Data

At the time of our study, the SEER program received uniformly reported data from nine tumor registries covering about 10% of the US population.[6] We included in our study the following geographic areas with significant Medicare HMO enrollments: Connecticut, Hawaii, Iowa, New Mexico, Detroit, San Francisco/Oakland, and Seattle. As population-based registries, SEER participants col-

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lect information on each incident cancer case in their reporting areas. Reported information includes month and year of diagnosis, site of cancer, stage at diagnosis, date of death, and county and census tract of residence.

Although SEER data do not constitute a probability sample of the nation, they are the primary source of national information on cancer incidence and survival.[6,7] SEER areas are concentrated in western states, and they involve a lower proportion of Blacks and a higher proportion of persons of "other" races than the US average.

SEER files were matched to Medicare enrollment files on an individual basis with a 94% match rate, as described elsewhere.[8] Medicare enrollment files contain entitlement dates to Part A and Part B, zip code of residence, and months in which the beneficiary was enrolled under a Medicare HMO risk or cost contract. Enrollees in both risk and cost HMOs were included in the study; findings for risk and cost contract enrollees were similar, and the results were pooled for this article. As of December 1989, 76% of Medicare HMO enrollees in SEER areas were in staff or group model HMOs, and 24% were Independent Practice Association HMOs.

Sample Selection

We selected first primary cases diagnosed between 1985 and 1989 in individuals who were 65 years of age or older and who were entitled to Part A and Part B at the time of diagnosis. For ovarian cancer, only cases diagnosed in 1985 through 1987 were selected because staging information was not available for later years at the time of our study. Lung cancer was excluded from the study because of the high number of unstaged cases.

We selected all cases diagnosed while the person was enrolled in an HMO. For each HMO case, two fee-for-service cases were randomly selected with the same cancer site, health service area of residence, and year of diagnosis (1985 through 1987 or 1988/89). A health service area is a geographic area, composed of one or more counties, that is relatively self-contained with respect to the provision of routine hospital care to Medicare beneficiaries.[9] Sample selection was based on health service area to control for geographic differences in provider practice patterns. In 1% of cases, there were insufficient fee-for-service cases in either a given health service area or year of diagnosis. In the former situation, fee-for-service cases were randomly selected from the appropriate registry rather than from the health service area; in the latter situation, fee-for-service cases were selected from other years of diagnosis. For melanomas, two fee-for-service cases were not available for each HMO case in San Francisco/Oakland, resulting in 76 (15%) too few fee-for-service cases from that registry.

TABLE 1—Number of Persons with Cancer and Percentage Distribution across Stage at Diagnosis, by Cancer Site and HMO Status: Aged Medicare Beneficiaries in SEER, 1985 to 1989

Cancer Site	All Persons	Distribution of Staged Cases, %				Unstaged, %
		In Situ	Local	Regional	Distant	
Strong evidence for screening						
Female breast[ab]						
HMO	2277	9.6	62.7	23.6	4.1	1.5
FFS	4507	8.6	57.4	28.4	5.7	3.9
Moderate evidence for screening						
Cervix uteri[ac]						
HMO	148	58.0	17.5	21.0	3.5	3.4
FFS	293	38.8	16.0	36.2	9.0	8.5
Colon[a]						
HMO	2039	5.9	41.5	36.6	16.0	3.6
FFS	4041	6.1	36.1	39.5	18.4	4.7
Rectum						
HMO	786	6.8	47.6	31.2	14.5	7.8
FFS	1567	7.5	43.5	34.4	14.7	6.9
Melanoma[ac]						
HMO	417	39.0	54.1	5.0	2.0	3.4
FFS	783	23.8	61.9	9.5	4.8	6.3
Weak evidence for screening						
Prostate[c]						
HMO	2737	0.0	64.3	16.8	18.8	8.8
FFS	5409	0.2	63.2	17.8	18.8	10.3
Buccal cavity and pharynx						
HMO	335	3.2	49.0	42.3	5.5	6.9
FFS	658	2.8	40.6	49.0	7.7	6.7
No evidence for screening						
Bladder						
HMO	880	. . .	76.6	20.0	3.5	4.9
FFS	1759	. . .	75.7	20.8	3.5	4.4
Corpus uteri and uterus, not otherwise specified[c]						
HMO	492	1.2	74.5	12.5	11.8	2.0
FFS	976	1.4	70.6	15.9	12.1	4.1
Kidney						
HMO	341	2.2	43.7	26.0	28.2	7.3
FFS	672	1.5	45.6	26.4	26.6	7.6
Stomach						
HMO	461	0.5	16.8	37.6	45.1	16.3
FFS	912	1.0	21.5	38.8	38.7	14.9
Ovary[d]						
HMO	146	0.0	11.0	34.3	54.7	6.2
FFS	278	0.4	11.9	37.7	50.0	6.5

Note. HMO = health maintenance organization; SEER = Surveillance, Epidemiology, and End Results program; FFS = fee-for-service.
[a]$P < .001$ for chi-square test of association between stage and HMO status.
[b]$P < .001$ for z test of difference in proportion unstaged between HMO and FFS.
[c]$P < .05$ for z test of difference in proportion unstaged between HMO and FFS.
[d]To compute chi-square values, the single in situ case was combined with local cases.

TABLE 2—Means and Percentage Distributions of Selected Independent Variables, by Patient's HMO Status: Aged Medicare Beneficiaries in SEER Diagnosed with Female Breast, Prostate, and Colon Cancer, 1985 to 1989

	Female Breast		Prostate		Colon	
	HMO	FFS	HMO	FFS	HMO	FFS
Mean age, y	73.2	74.4	74.3	75.0	75.0	76.2
Male (1 = yes)	0.00	0.00	1.00	1.00	0.53	0.48
Race, %						
White	84	83	77	77	78	77
Black	4	5	7	8	4	6
Asian (Chinese/Japanese/Filipino)	7	7	9	9	13	12
Other and unknown (includes Hispanic)	5	5	7	6	6	5
Married, %	46	40	75	71	59	52
Registry, %						
Connecticut	6	6	5	5	6	6
San Francisco/Oakland	49	49	44	43	46	45
Detroit	5	5	6	6	6	6
Hawaii	11	11	13	13	15	15
Iowa	6	6	7	7	6	6
New Mexico	4	4	6	7	5	5
Seattle	18	18	19	20	16	16
Adults with < 12 years of education (census tract/zip code), %	23	23	24	24	24	25

Note. Unstaged cases are excluded. HMO = health maintenance organization; SEER = Surveillance, Epidemiology, and End Results program; FFS = fee-for-service.

Staging

The NCI codes stage at diagnosis using extent of disease information reported by the registries. The registries abstract information from a variety of sources, including inpatient hospital records, outpatient records, and pathology reports. The staging system recognizes four stages: in situ indicates a noninvasive malignancy; local stage indicates an invasive cancer confined to the site/organ of origin; regional stage indicates spread by direct extension to adjacent organs or to regional lymph nodes; and distant stage indicates spread to distant organs or lymph nodes.

Between 3% and 15% of cases were unstaged, depending on cancer site, because there was inadequate information available on extent of disease. Unstaged cases involve relatively high death rates, suggesting that they consist largely of regional and distant cases.[6]

Analysis

We first excluded cases diagnosed through death certificate review or autopsy (1.2% of all HMO cases and 2.1% of fee-for-service cases) and all unstaged cases. We then estimated three separate logistic regression equations for each cancer site using the following dependent variables: Y1 (1 if stage is distant, 0 for earlier stages), Y2 (1 if stage is regional, 0 if stage is in situ or local), and Y3 (1 if stage is local, 0 if stage is in situ).

Distant stage cases were excluded from the second model, and both distant and regional stage cases were excluded from the third. This method has been described by Fienberg[10] and is appropriate in situations in which the levels of the dependent variable are ordered. If there were fewer than 60 distant stage cases for a given site, those cases were pooled with the regional cases. Unconditional logistic regression was used because most site, health service area, and year strata were large, making the use of conditional logistic regression unnecessary.[11]

Odds ratios (ORs) and 95% confidence intervals were estimated according to standard methods from logistic regression modeling.[12] Goodness of fit of the regression models was assessed by comparing observed and expected numbers of cases with late and early stage disease within deciles of estimated probabilities.[13]

The equations incorporated the following independent variables: age, sex, race, marital status, percentage of adults not completing high school at the census tract level, health service area, year of diagnosis, and HMO enrollment status. Age, race, and marital status were included because previous studies have shown an association between these variables and stage for some cancer sites.[14–18] Race was coded as White, Black, Asian (Chinese/Japanese/Filipino), or other.

Previous studies have shown that lower socioeconomic status (SES) is associated with later stage at diagnosis for breast and cervical cancers.[19–21] Education at the census tract level (expressed as the proportion of adults with less than 12 years of education), based on US census data, was used as a proxy for individual SES status. Education is related conceptually and empirically to both knowledge and use of cancer screening tests.[22] In untracted areas, education at the zip code level was used (14% of cases).

Classification of Cancer Sites

We classified cancer sites on the basis of the efficacy of screening for reducing mortality. Evidence on the efficacy of cancer screening is summarized by the Physician Data Query system, a computerized clinical information service on cancer maintained by NCI.[23] Five levels of evidence are cited, ranging from properly randomized, well-designed and conducted, controlled trials (level 1) to opinions of respected authorities based on clinical experience, descriptive studies, or reports of expert committees (level 5). On the basis of Physician Data Query levels of evidence at the time of our study, we classified cancer of the female breast as having strong evidence for screening; cancers of the cervix uteri, colon, and rectum and melanomas as having moderate evidence; cancers of the prostate and buccal cavity and pharynx as having weak evidence; and cancers of the bladder, uterus, kidney, stomach, and ovary as having no evidence.

Results

HMO enrollees were diagnosed at significantly earlier stages for four sites without controlling for covariates: female breast, cervix, colon, and melanoma (Table 1). The largest difference between HMO enrollees and nonenrollees (i.e., beneficiaries in fee-for-service) was for women with cervical cancer. Fifty-eight percent of HMO enrollees with cervical cancer were

diagnosed at the in situ stage, in comparison with only 38.8% of nonenrollees. There were also large differences associated with melanomas, with 39% of HMO enrollees diagnosed at the in situ stage and only 23.8% of nonenrollees diagnosed at that stage. Differences in stage between enrollees and nonenrollees were smaller in magnitude for breast and colon cancer but were statistically significant in part because of their larger sample sizes.

The percentage of cases for which stage was known varied among sites (Table 1). For most sites, fewer than 10% of cases were unstaged; for stomach and prostate cancers, however, approximately 15% and 10% respectively, were unstaged. There was a significantly smaller percentage of unstaged cases among HMO enrollees than among nonenrollees for five sites: female breast, cervix, prostate, melanoma, and uterus.

Table 2 summarizes characteristics of HMO enrollees and nonenrollees with female breast, prostate, and colon cancers. There were few differences. The average age of HMO enrollees tended to be about 1 year less than that of nonenrollees. There were no important differences by race, registry, or proportion of adults with less than 12 years of education at the census tract or zip code level. More HMO enrollees tended to be married than nonenrollees, reflecting in part their younger age.

About 45% of sample persons were in the San Francisco/Oakland area, reflecting the high enrollment in Kaiser Permanente. Nearly 20% resided in the Seattle area, most of whom were enrolled in the Group Health Cooperative of Puget Sound. The Hawaii registry had the third highest number of sample persons, resulting in a geographic bias toward HMOs in the western United States.

HMO enrollees with breast cancer were less likely to be diagnosed at distant stages than were nonenrollees (OR = 0.73) (Table 3). HMO enrollees were also less likely to be diagnosed at regional stages than at earlier stages (OR = 0.78). Among women diagnosed at the in situ or local stage, there was no effect of HMO enrollment on stage.

HMO enrollees with cervical cancer were only about one third as likely as nonenrollees to be diagnosed at the regional or distant stage (OR = 0.35). The odds ratio for local vs in situ disease was also below one but was not significant.

Among persons with colon cancer, HMO enrollees were less likely to be diagnosed at regional stages than were nonenrollees (OR = 0.85). HMO enrollees with melanoma were less than half as likely as nonenrollees to be diagnosed at the regional or distant stage (OR = 0.44); among cases diagnosed at the in situ or local stage, HMO enrollees were only about half as likely to be diagnosed at the local stage (OR = 0.52).

For persons with stomach cancer, HMO enrollment was associated with distant stage disease (OR = 1.32). The odds ratio for regional vs in situ or local disease was also above one but was not significant.

Chi-square statistics indicating goodness of fit were nonsignificant at the 5% level for all regression equations except one, indicating acceptable fit of the models to the data. (The full results of the logistic regression analyses are available from the first author.)

Because nearly half of the HMO enrollees were in the San Francisco/Oakland registry (most of whom were Kaiser Permanente enrollees), our findings may not represent a general HMO effect. To test the generalizability of our findings, we developed separate models for the following registries for breast and colon cancers: San Francisco/Oakland, Seattle, Hawaii, and all other registries combined. The HMO effects were strongest in the San Francisco/Oakland and Seattle areas (Table 4). For breast cancer cases in San Francisco/Oakland and Seattle, HMO enrollees were diagnosed at significantly earlier stages. For "other" registries, there was a nonsignificant effect of fewer regional stages for HMO enrollees. For Hawaii, there was no pattern of earlier stage for HMO enrollees.

For colon cancer, HMO enrollees were diagnosed at significantly earlier stages in San Francisco/Oakland, Seattle,

TABLE 3—Odds Ratios for the Association of HMO Enrollment Status with Cancer Stage at Diagnosis: Aged Medicare Beneficiaries in SEER Diagnosed from 1985 to 1989

Site of Cancer	Distant vs Earlier Stages: OR for Distant Stage	Distant vs Earlier Stages: 95% CI	Regional vs Earlier Stages: OR for Regional Stage	Regional vs Earlier Stages: 95% CI	Local vs In Situ Stage: OR for Local Stage	Local vs In Situ Stage: 95% CI
Strong evidence for screening						
Female breast	0.73	0.57, 0.94	0.78	0.69, 0.87	1.01	0.84, 1.21
Moderate evidence for screening						
Cervix uteri	NE		0.34	0.21, 0.56	0.73	0.39, 1.35
Colon	0.87	0.75, 1.01	0.85	0.75, 0.96	1.20	0.94, 1.53
Rectum	0.98	0.76, 1.27	0.86	0.70, 1.06	1.25	0.86, 1.81
Melanoma	NE		0.44	0.28, 0.68	0.52	0.39, 0.69
Weak evidence for screening						
Prostate	1.04	0.92, 1.18	0.91	0.79, 1.04	NE	
Buccal cavity and pharynx	0.79	0.43, 1.43	0.75	0.56, 1.02	NE	
No evidence for screening						
Bladder	1.06	0.67, 1.69	0.99	0.80, 1.22	. . .	. . .
Corpus uteri and uterus, not otherwise specified	1.03	0.73, 1.46	0.79	0.57, 1.11	NE	
Kidney	1.12	0.82, 1.53	1.02	0.73, 1.44	NE	
Stomach	1.32	1.03, 1.70	1.18	0.83, 1.69	NE	
Ovary	1.32	0.84, 2.06	NE		NE	

Note. For cervical cancer and melanoma, distant and regional cases were pooled because of the small number of distant stage cases. HMO = health maintenance organization; SEER = Surveillance, Epidemiology, and End Results program; NE = not estimated; OR = odds ratio; CI = confidence interval.

TABLE 4—Odds Ratios for the Association of HMO Enrollment Status with Stage at Diagnosis: Aged Medicare Beneficiaries in SEER Diagnosed with Female Breast and Colon Cancer, 1985 to 1989

Geographic Area	Distant vs. Earlier Stages: OR for Distant Stage	95% CI	Regional vs. Earlier Stages: OR for Regional Stage	95% CI	Local vs. In Situ Stage: OR for Local Stage	95% CI
Female breast						
San Francisco/ Oakland	0.59	0.39, 0.87	0.74	0.63, 0.88	0.92	0.71, 1.19
Seattle	NE		0.66	0.50, 0.87	1.27	0.82, 1.97
Hawaii	NE		1.09	0.77, 1.55	1.07	0.65, 1.76
Other[a]	0.92	0.59, 1.44	0.81	0.63, 1.04	1.12	0.72, 1.73
Total	0.73	0.57, 0.94	0.78	0.69, 0.87	1.01	0.84, 1.21
Colon						
San Francisco/ Oakland	0.92	0.74, 1.14	0.80	0.67, 0.95	1.56	1.05, 2.33
Seattle	0.63	0.43, 0.92	0.80	0.59, 1.08	1.48	0.82, 2.65
Hawaii	0.59	0.39, 0.91	0.90	0.65, 1.24	1.03	0.60, 1.76
Other[a]	1.18	0.88, 1.57	0.99	0.77, 1.28	0.77	0.46, 1.29
Total	0.87	0.75, 1.01	0.85	0.75, 0.96	1.20	0.94, 1.53

Note. For breast cancer cases in Seattle and Hawaii, distant and regional cases were pooled. HMO = health maintenance organization; SEER = Surveillance, Epidemiology, and End Results program; NE = not estimated separately because of small sample size; OR = odds ratio; CI = confidence interval.
[a]Connecticut, Detroit, Iowa, New Mexico.

and Hawaii but not in the other registries combined.

Discussion

Screening Services and Stage at Diagnosis

HMO enrollees were diagnosed at earlier stages for four sites—female breast, cervix, colon, and melanomas—for which there is strong or moderate evidence for screening. The earlier stages we found may be attributable to HMO coverage of procedures such as screening mammograms, clinical breast examinations, Pap smears, fecal occult blood tests, sigmoidoscopies, and physical examinations. (Medicare did not cover Pap smears until July 1990 and screening mammograms until January 1991.) More than 90% of HMOs with Medicare risk contracts include coverage of preventive services in their benefit packages.[1] Kaiser Permanente and the Group Health Cooperative of Puget Sound, the two largest sources of HMO enrollees in our study, provide preventive services for their Medicare enrollees. Most preventive services are not covered under Medicare fee-for-service, and such services are seldom covered under supplemental "Medigap" policies.[24] Studies of service use have found that HMO enrollees receive more cancer screening services than nonenrollees.[22,25,26] The greater availability of screening services in HMOs may be particularly important for the elderly because elderly women use screening mammographies and Pap smears less frequently than do younger women.[27]

Medicare coverage of Pap smears and screening mammograms under fee-for-service began in 1990 and 1991, respectively. If use of these services is increasing because of Medicare coverage, elderly women may experience earlier stages at diagnosis over time for cancers of the cervix and breast. Future analyses of SEER data can reveal whether this is occurring and whether the distribution of stage at diagnosis in fee-for-service becomes more like that in HMOs over time. Burg and Lane[28] argue that Medicare payment for screening mammography is unlikely to substantially increase use, however, based on physician attitudes toward mammography for older women.

We found that HMO enrollees were diagnosed at significantly earlier stages for melanomas. This type of cancer may be amenable to detection during a routine physical examination or other physician encounter. Although Medicare does not cover routine physical examinations under fee-for-service, 82% of HMOs with risk contracts covered such examinations for their Medicare enrollees as of December 1989. Brown et al.[1] found that HMO enrollees were somewhat more likely than nonenrollees to have a physical examination and were more likely to have at least one physician visit in a year.

Although previous studies have shown that HMO enrollees tend to use more preventive services than nonenrollees, it is not clear whether this is due to insurance coverage of such services or to promotion of their use by HMOs. Luft,[29] in a review of the literature, suggested that differential use of preventive services is due to an "insurance effect" (i.e., financial coverage) and not to an HMO "health maintenance effect." Manning et al.,[30] however, found evidence for both effects. Brown et al.[22] found that HMO membership was associated with both knowledge and use of fecal occult blood tests, suggesting that part of the HMO effect on use of screening services may be due to preventive health education, as well as increased access. Another explanation, however, is that prevention-oriented individuals may have self-selected into HMOs. Such prevention-oriented persons may have sought out screening services even if they had not enrolled.

With the exception of stomach cancer, we did not find differences in stage between HMOs and fee-for-service for sites lacking routine screening procedures. This finding is consistent with a lack of systematic differences between HMO and fee-for-service care in access to services related to cancer diagnosis for those sites lacking routine screening procedures. It is also consistent with a lack of systematic differences between enrollees and nonenrollees in their care-seeking behavior for symptoms indicative of cancer.

Other studies have tended to find no differences in stage at diagnosis between HMOs and fee-for-service. A reason that our findings differ from those of other studies may be that our study was restricted to the elderly population, most of whom did not have insurance coverage of preventive services outside an HMO setting. We also had much larger sample sizes than were available in previous studies.

Although we found earlier stages at diagnosis for HMO enrollees, we did not determine whether survival was improved for them. Screening tests may produce a shift to earlier stages at diagnosis without

any improvement in survival because of length and lead time bias effects.[31] Randomized controlled trials of screening mammography and fecal occult blood tests have demonstrated reductions in mortality accompanied by shifts in stage at diagnosis.[32,33] An analysis of survival experience was beyond the scope of our study.

Limitations

Stage at diagnosis is determined from information on extent of disease, which may be influenced by the diagnostic and therapeutic procedures used, as well as by the adequacy of provider record keeping. Any differences in such factors between HMOs and fee-for-service providers could influence our findings. The higher percentage of unstaged cases in fee-for-service suggests that reporting of extent of disease information was better for HMO enrollees. The high mortality of unstaged cases suggests possible underidentification of regional and distant cases, which would make our findings conservative regarding earlier diagnosis in HMOs. It is also possible, however, that the high mortality of unstaged cases may be due to the poorer underlying health involved in these cases rather than to greater spread of cancer at the time of diagnosis.

Our findings may not be generalizable to all HMOs with Medicare contracts. The HMO enrollees in our study were disproportionately enrolled in staff and group model HMOs. In addition, most HMO enrollees in San Francisco/Oakland and many enrollees in Hawaii were members of Kaiser Permanente; most in Seattle were members of the Group Health Cooperative of Puget Sound. Our database did not permit us to identify in which HMOs specific individuals were enrolled.

Policy Implications

Our findings suggest that coverage of preventive services may affect stage of cancer at diagnosis, which is strongly associated with survival and morbidity. Policymakers should consider a significant role for preventive services under health care reform. The Health Security Act, for example, proposes coverage for a significant level of preventive care, including Pap smears, screening mammograms, and clinician visits. Such services can be provided at reasonable cost, as evidenced by many HMOs that provide such services to Medicare enrollees and remain competitive with fee-for-service.

Stage at diagnosis can serve as a measure of access and quality of care in individual health plans. Under the Health Security Act, health alliances are expected to have a strong role in evaluating the quality of care in plans and making their findings available to consumers. Monitoring stage of cancer at diagnosis may be part of the alliances' evaluation function, particularly if Medicare comes under their purview. Monitoring stage may be somewhat easier than monitoring outcomes of care, which usually require complex case mix adjustments. Finally, health alliances should directly monitor access to and use of preventive services among participating health plans because access to such services is an important dimension of plan quality. □

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Report Available on the Rapid Identification and Treatment of Acute Myocardial Infarction

Each year, about 1.25 million people in the United States experience a heart attack. Approximately 500 000 of these people die. It is thought that many of these deaths could be prevented by initiating medical help as soon as a heart attack is suspected. A new report by the National Heart Attack Alert Program (NHAAP), *Emergency Department: Rapid Identification and Treatment of Patients with Acute Myocardial Infarction,* discusses the scientific basis for early care and makes a number of recommendations for reducing emergency department delays in the identification and treatment of heart attack patients.

The report concentrates on the emergency department's contribution to overall time until treatment for acute myocardial infarction (AMI). It describes the scientific basis for decreasing the time from the onset of symptoms to treatment and then specifically addresses impediments to rapid care in the emergency department. The report proposes changes in processes that can reduce delays at each point and presents an AMI time-to-treatment flow sheet for tracking these critical AMI timepoints. The report encourages all departments responsible for acute care to coordinate and establish protocols to ensure rapid identification and treatment of AMI patients. Finally, the report challenges emergency departments to implement a system of continuous quality improvement to identify and reduce delays in the treatment of AMI patients.

The NHAAP was launched by the National Heart, Lung, and Blood Institute in June 1991 to promote the rapid identification and treatment of individuals with symptoms and signs of AMI. The overall goal of the program is to reduce AMI-related morbidity and mortality. The NHAAP Coordinating Committee—consisting of representatives from 40 national professional, scientific, governmental, and voluntary organizations (including APHA)—was formed to help guide the program.

For a complimentary copy of the report (NIH publication 93-3278), contact the National Heart, Lung, and Blood Institute Information Center, PO Box 30105, Bethesda, MD 20824-0105; tel (301) 251-1222; fax (301) 251-1223.